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Joint Polar Satellite System (JPSS) Algorithm Specification Volume I: Software Requirement Specification (SRS) for the VIIRS Imagery

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National Aeronautics and
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Goddard Space Flight Center
Greenbelt, Maryland

Joint Polar Satellite System (JPSS) Algorithm Specification Volume I: Software Requirement Specification (SRS) for the VIIRS Imagery JPSS Review/Approval Page

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Preface

This document is under JPSS Ground Project configuration control. Once this document is approved, JPSS approved changes are handled in accordance with Class I and Class II change control requirements as described in the JPSS Configuration Management Procedures, and changes to this document shall be made by complete revision.

Any questions should be addressed to:

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Change History Log

Revision	Effective Date	Description of Changes (Reference the CCR & CCB/ERB Approve Date)
Rev-	Aug. 29, 2013	This version incorporates 474-CCR-13-1178 which was approved by JPSS Ground ERB on the effective date shown.
A	Jan 23, 2014	This version incorporates 474-CCR-13-1457 which was approved by JPSS Ground ERB on the effective date shown.
A1	Oct 23, 2014	This version incorporates 474-CCR-14-2091 which was approved by the JPSS Ground ERB for CO10 on the effective date shown.
B	Nov 20, 2014	This version incorporates 474-CCR-14-1721, 474-CCR-14-1741, 474-CCR-14-1781, 474-CCR-14-1793 and 474-CCR-14-2120 which was approved by JPSS Ground ERB on the effective date shown.
C	Feb 12, 2016	This version incorporates 474-CCR-14-2110, 474-CCR-15-2452, 474-CCR-15-2480, 474-CCR-15-2657, and 474-CCR-16-2776 which was approved by JPSS Ground ERB on the effective date shown.
0200D	Sep 22, 2016	This version incorporates 474-CCR-16-2939 and 474-CCR-16-3049 which was approved by JPSS Ground ERB on the effective date shown.

Table of TBDs/TBRs

TBx	Type	ID	Text	Action
None				

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1 Introduction

The Joint Polar Satellite System (JPSS) is the National Oceanic and Atmospheric Administration's (NOAA) next-generation operational Earth observation program that acquires and distributes global environmental data primarily from multiple polar-orbiting satellites. The program plays a critical role in NOAA's mission to understand and predict changes in weather, climate, oceans and coasts, and the space environment, which support the Nation's economy and protect lives and property. The first JPSS satellite mission, the Suomi National Polar-orbiting Partnership (S-NPP) satellite, successfully launched in October 2011. S-NPP, along with the legacy NOAA Polar Operational Environmental Satellites (POES), provides continuous environmental observations. Two JPSS satellites will follow S-NPP: JPSS-1, planned for launch in fiscal year (FY) 2017, with JPSS-2 to follow in FY2021. In the future, the JPSS Polar Follow-On (PFO) provides for two additional missions, JPSS-3 and JPSS-4, as follow-on to the JPSS-2 mission to extend the JPSS Program lifecycle out to 2038.

In addition to the JPSS Program's own satellites operating in the 1330 (±10) Local Time of the Ascending Node (LTAN) orbit, NOAA also leverages mission partner assets for complete global coverage. These partner assets include the Department of Defense (DoD) Defense Meteorological Satellite Program (DMSP) operational weather satellites (in the 1730 - 1930 LTAN orbit), the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) Meteorological Operational (Metop) satellites (in the 2130 LTAN orbit) and the Japanese Aerospace Exploration Agency (JAXA) Global Change Observation Mission-Water (GCOM-W) satellite (in the 1330 LTAN orbit). JPSS routes Metop data from McMurdo Station, Antarctica to the EUMETSAT facility in Darmstadt, Germany and EUMETSAT, in turn, provides Metop data to NOAA. For GCOM, JPSS routes the GCOM-W data from Svalbard, Norway to the NOAA Satellite Operations Facility (NSOF) in Suitland, MD, processes GCOM-W data and delivers GCOM-W products to the JPSS users who have JAXA permissions.

Additionally, the JPSS Program provides data acquisition and routing support to the DMSP and the WindSat Coriolis Program. JPSS routes DMSP data from McMurdo Station to the 557th Weather Wing at Offutt Air Force Base in Omaha, NE. After processing, the 557th releases the DMSP data for public consumption over the Internet via the National Geophysical Data Center in Boulder, CO. The JPSS Program provides data routing support to the National Science Foundation (NSF), as well as the National Aeronautics and Space Administration (NASA) Space Communications and Navigation (SCaN)-supported missions, which include the Earth Observing System (EOS). As part of the agreements for the use of McMurdo Station, JPSS provides communications/network services for the NSF between McMurdo Station, Antarctica and Centennial, Colorado.

As a multi-mission ground infrastructure, the JPSS Ground System supports the heterogeneous constellation of the before-mentioned polar-orbiting satellites both within and outside the JPSS Program through a comprehensive set of services as listed in Table 1-1.

Table: 1-1 JPSS Ground System Services

Service	Description
Enterprise Management and Ground Operations	Provides mission management, mission operations, ground operations, contingency management and system sustainment
Flight Operations	Provides launch support and early orbit operations, telemetry and commanding, orbital operations, mission data playback, payload support, flight software upgrade, flight vehicle simulation, and disposal at the end of mission life
Data Acquisition	Provides space/ground communications for acquiring mission data
Data Routing	Provides routing of telemetry, mission and/or operations data through JPSS' global data network
Data Product Generation	Provides the processing of mission data to generate and distribute raw, sensor, environmental, and ancillary data products
Data Product Calibration and Validation	Provides calibration and validation of the data products
Field Terminal Support	Provides development and operational support to the Field Terminal customers

1.1 Identification

This SRS provides requirements for the VIIRS Imagery Environmental Data Records (EDRs), generated from all 5 I-bands, a Day Night Band (DNB), and from 6 of 16 M-bands.

1.2 Algorithm Overview

The algorithm merely transforms the VIIRS SDRs to a Ground-Track Mercator projection. All imagery products report a top-of-atmosphere radiance. In addition, emissive-band imagery reports a top-of-atmosphere brightness temperature, and reflective-band imagery reports a top-of-atmosphere reflectance.

1.3 Document Overview

Section	Description
Section 1	Introduction - Provides a brief overview of the JPSS Ground System and the relevant algorithm, as reference material only.
Section 2	Related Documentation - Lists related documents and identifies them as Parent, Applicable, or Information Documents such as, MOAs, MOUs, technical implementation agreements, as well as Data Format specifications. This section also establishes an order of precedence in the event of conflict between two or more documents.
Section 3	Algorithm Requirements - Provides a summary of the science requirements for the products covered by this volume.
Appendix A	Requirements Attributes - Provides the mapping of requirements to verification methodology and attributes.

2 Related Documentation

The latest JPSS documents can be obtained from URL: https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm. JPSS Project documents have a document number starting with 470, 472 or 474 indicating the governing Configuration Control Board (CCB) (Program, Flight, or Ground) that has the control authority of the document.

2.1 Parent Documents

The following reference document(s) is (are) the Parent Document(s) from which this document has been derived. Any modification to a Parent Document will be reviewed to identify the impact upon this document. In the event of a conflict between a Parent Document and the content of this document, the JPSS Program Configuration Change Board has the final authority for conflict resolution.

Doc. No.	Document Title
470-00067	Joint Polar Satellite System (JPSS) Ground System Requirements Document (GSRD)
470-00067-02	Joint Polar Satellite System (JPSS) Ground System Requirements Document (GSRD), Volume 2 - Science Product Specification
474-00448-01-01	Joint Polar Satellite System (JPSS) Algorithm Specification Volume I: Software Requirements Specification (SRS) for the Common Algorithms

2.2 Applicable Documents

The following document(s) is (are) the Applicable Document(s) from which this document has been derived. Any modification to an Applicable Document will be reviewed to identify the impact upon this document. In the event of conflict between an Applicable Document and the content of this document, the JPSS Program Configuration Change Board has the final authority for conflict resolution.

Doc. No.	Document Title
D0001-M01-S01-008	Joint Polar Satellite System (JPSS) VIIRS Imagery Products Algorithm Theoretical Basis Document (ATBD)
474-00448-02-26	Joint Polar Satellite System (JPSS) Algorithm Specification Volume II: Data Dictionary for the VIIRS Imagery
474-00448-04-26	Joint Polar Satellite System (JPSS) Algorithm Specification Volume IV: Software Requirements Specification Parameter File (SRSPF) for the VIIRS Imagery

2.3 Information Documents

The following documents are referenced herein and amplify or clarify the information presented in this document. These documents are not binding on the content of this document.

Doc. No.	Document Title
474-00333	Joint Polar Satellite System (JPSS) Ground System (GS) Architecture Description Document (ADD)
474-00054	Joint Polar Satellite System (JPSS) Ground System (GS) Concept of Operations (ConOps)
470-00041	Joint Polar Satellite System (JPSS) Program Lexicon

Doc. No.	Document Title
474-00448-03-26	Joint Polar Satellite System (JPSS) Algorithm Specification Volume III: Operational Algorithm Description (OAD) for the VIIRS Imagery
429-05-02-42	Joint Polar Satellite System (JPSS) Mission Data Format Control Book for NPP
472-00251	Joint Polar Satellite System (JPSS) Mission Data Format Control Book for JPSS-1

3 Algorithm Requirements

3.1 States and Modes

3.1.1 Normal Mode Performance

SRS.01.26_152 The VIIRS NCC Imagery algorithm shall calculate the value with a horizontal spatial resolution of 0.8 km across swath.

Rationale: The horizontal spatial resolution value for the Near Constant Contract (NCC) Imagery uses Day/night band resolution and was flowed down from the Level 1 and Level 2 documents.

Mission Effectivity: JPSS-1, JPSS-2

SRS.01.26_155 The VIIRS NCC Imagery algorithm shall calculate the position of the pixel with a 3-sigma mapping uncertainty at nadir of 1 km.

Rationale: The mapping uncertainty at nadir for the NCC Imagery was flowed down from the Level 1 and Level 2 documents.

Mission Effectivity: JPSS-1, JPSS-2

SRS.01.26_156 The VIIRS NCC Imagery algorithm shall calculate the position of the pixel with a 3-sigma mapping uncertainty at edge of swath of 3 km.

Rationale: The mapping uncertainty at edge of swath for the NCC Imagery was flowed down from the Level 1 and Level 2 documents.

Mission Effectivity: JPSS-1, JPSS-2

SRS.01.26_170 The VIIRS Reflective I-band Imagery algorithm shall produce the reflectance with a horizontal spatial resolution at nadir of 0.4 km.

Rationale: The horizontal spatial resolution value at nadir for the I-band Imagery was flowed down from the Level 1 and Level 2 documents.

Mission Effectivity: JPSS-1, JPSS-2

SRS.01.26_171 The VIIRS Reflective I-band Imagery algorithm shall produce the reflectance with a horizontal spatial resolution at edge of swath of 0.8 km.

Rationale: The horizontal spatial resolution value at edge of swath for the I-band Imagery was flowed down from the Level 1 and Level 2 documents.

Mission Effectivity: JPSS-1, JPSS-2

SRS.01.26_172 The VIIRS Reflective I-band Imagery algorithm shall produce the reflectance with a 3-sigma mapping uncertainty at nadir of 1 km.

Rationale: The mapping uncertainty at nadir for the I-band Imagery was flowed down from the Level 1 and Level 2 documents, with the application of the associated data in the product.

Mission Effectivity: JPSS-1, JPSS-2

SRS.01.26_173 The VIIRS Reflective I-band Imagery algorithm shall produce the reflectance with a 3-sigma mapping uncertainty at edge of swath of 3 km.

Rationale: The mapping uncertainty at edge of swath for the I-band Imagery was flowed down from the Level 1 and Level 2 documents, with the application of the associated data in the product.

Mission Effectivity: JPSS-1, JPSS-2

SRS.01.26_184 The VIIRS Emissive I-band Imagery algorithm shall produce the brightness temperature with a horizontal spatial resolution at nadir of 0.4 km.

Rationale: The horizontal spatial resolution value at nadir for the I-band Imagery was flowed down from the Level 1 and Level 2 documents.

Mission Effectivity: JPSS-1, JPSS-2

SRS.01.26_185 The VIIRS Emissive I-band Imagery algorithm shall produce the brightness temperature with a horizontal spatial resolution at edge of swath of 0.8 km.

Rationale: The horizontal spatial resolution value at edge of swath for the I-band Imagery was flowed down from the Level 1 and Level 2 documents.

Mission Effectivity: JPSS-1, JPSS-2

SRS.01.26_186 The VIIRS Emissive I-band Imagery algorithm shall produce the brightness temperature with a 3-sigma mapping uncertainty at nadir of 1 km.

Rationale: The mapping uncertainty at nadir for the I-band Imagery was flowed down from the Level 1 and Level 2 documents, with the application of the associated data in the product.

Mission Effectivity: JPSS-1, JPSS-2

SRS.01.26_187 The VIIRS Emissive I-band Imagery algorithm shall produce the brightness temperature with a 3-sigma mapping uncertainty at edge of swath of 3 km.

Rationale: The mapping uncertainty at edge of swath for the I-band Imagery was flowed down from the Level 1 and Level 2 documents, with the application of the associated data in the product.

Mission Effectivity: JPSS-1, JPSS-2

SRS.01.26_200 The VIIRS Reflective M-band Imagery algorithm shall produce the reflectance with a horizontal spatial resolution at nadir of 0.8 km.

Rationale: The horizontal spatial resolution value at nadir for the M-band Imagery was flowed down from the Level 1 and Level 2 documents.

Mission Effectivity: JPSS-1, JPSS-2

SRS.01.26_201 The VIIRS Reflective M-band Imagery algorithm shall produce the reflectance with a horizontal spatial resolution at edge of swath of 1.6 km.

Rationale: The horizontal spatial resolution value at edge of swath for the M-band Imagery was flowed down from the Level 1 and Level 2 documents.

Mission Effectivity: JPSS-1, JPSS-2

SRS.01.26_202 The VIIRS Reflective M-band Imagery algorithm shall produce the reflectance with a 3-sigma mapping uncertainty at nadir of 1 km.

Rationale: The mapping uncertainty at nadir for the M-band Imagery was flowed down from the Level 1 and Level 2 documents, with the application of the associated data in the product.

Mission Effectivity: JPSS-1, JPSS-2

SRS.01.26_203 The VIIRS Reflective M-band Imagery algorithm shall produce the reflectance with a 3-sigma mapping uncertainty at edge of swath of 3 km.

Rationale: The mapping uncertainty at edge of swath for the M-band Imagery was flowed down from the Level 1 and Level 2 documents, with the application of the associated data in the product.

Mission Effectivity: JPSS-1, JPSS-2

SRS.01.26_213 The VIIRS Emissive M-band Imagery algorithm shall produce the brightness temperature with a horizontal spatial resolution at nadir of 0.8 km.

Rationale: The horizontal spatial resolution value at nadir for the M-band Imagery was flowed down from the Level 1 and Level 2 documents.

Mission Effectivity: JPSS-1, JPSS-2

SRS.01.26_214 The VIIRS Emissive M-band Imagery algorithm shall produce the brightness temperature with a horizontal spatial resolution at edge of swath of 1.6 km.

Rationale: The horizontal spatial resolution value at edge of swath for the M-band Imagery was flowed down from the Level 1 and Level 2 documents.

Mission Effectivity: JPSS-1, JPSS-2

SRS.01.26_215 The VIIRS Emissive M-band Imagery algorithm shall produce the brightness temperature with a 3-sigma mapping uncertainty at nadir of 1 km.

Rationale: The mapping uncertainty at nadir for the M-band Imagery was flowed down from the Level 1 and Level 2 documents.

Mission Effectivity: JPSS-1, JPSS-2

SRS.01.26_216 The VIIRS Emissive M-band Imagery algorithm shall produce the brightness temperature with a 3-sigma mapping uncertainty at edge of swath of 3 km.

Rationale: The mapping uncertainty at edge of swath for the M-band Imagery was flowed down from the Level 1 and Level 2 documents, with the application of the associated data in the product.

Mission Effectivity: JPSS-1, JPSS-2

3.1.2 Graceful Degradation Mode Performance

Not applicable.

3.2 Algorithm Functional Requirements

3.2.1 Product Production Requirements

Not applicable.

3.2.2 Algorithm Science Requirements

SRS.01.26_145 The VIIRS NCC Imagery EDR software shall incorporate a computing algorithm provided for pseudo albedo.

Rationale: The EDR software through its algorithm must use normalized, top-of-atmosphere radiances to produce NCC Imagery in accordance with the JPSS VIIRS Imagery Products Algorithm Theoretical Basis Document (ATBD) (D0001-M01-S01-008).

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_146 The VIIRS NCC Imagery EDR software shall incorporate a computing algorithm provided for mapping DNB SDR geolocation to the Ground Track Mercator grid.

Rationale: The EDR software through its algorithm must map DNB SDR geolocation to a GTM grid to produce geolocation for NCC Imagery.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_178 The VIIRS Emissive I-band Imagery EDR software shall incorporate a computing algorithm provided for calibrated, top-of-atmosphere radiances.

Rationale: The calibrated TOA radiance is one of Emissive I-band SDR products and is used to produce Emissive I-band Imagery EDR in accordance with the JPSS VIIRS Imagery Products Algorithm Theoretical Basis Document (ATBD) (D0001-M01-S01-008).

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_179 The VIIRS Emissive I-band Imagery EDR software shall incorporate a computing algorithm provided for calibrated, top-of-atmosphere brightness temperatures.

Rationale: The calibrated TOA brightness temperature is one of Emissive I-band SDR products and is used to produce Emissive I-band Imagery EDR in accordance with the JPSS VIIRS Imagery Products Algorithm Theoretical Basis Document (ATBD) (D0001-M01-S01-008).

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_162 The VIIRS Reflective I-band Imagery EDR software shall incorporate a computing algorithm provided for calibrated, top-of-atmosphere radiances.

Rationale: The calibrated TOA radiance is one of Reflective I-band SDR products and is used to produce Reflective I-band Imagery EDR in accordance with the JPSS VIIRS Imagery Products Algorithm Theoretical Basis Document (ATBD) (D0001-M01-S01-008).

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_163 The VIIRS Reflective I-band Imagery EDR software shall incorporate a computing algorithm provided for calibrated, top-of-atmosphere reflectances when the sensor mode is "day".

Rationale: The Reflective I-bands SDR products are produced for daytime only and are used to produce Reflective I-band Imagery EDR in accordance with the JPSS VIIRS Imagery Products Algorithm Theoretical Basis Document (ATBD) (D0001-M01-S01-008).

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_164 The VIIRS I-band Imagery EDR software shall incorporate a computing algorithm provided for mapping I-band SDR geolocation to the Ground Track Mercator grid.

Rationale: The EDR software through its algorithm must map I-band SDR geolocation to a GTM grid to produce geolocation for I-band Imagery.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_192 The VIIRS Reflective M-band Imagery EDR software shall incorporate a computing algorithm provided for calibrated, top-of-atmosphere radiances.

Rationale: The calibrated TOA radiance is one of Reflective M-band SDR products and is used to produce Reflective M-band Imagery EDR in accordance with the JPSS VIIRS Imagery Products Algorithm Theoretical Basis Document (ATBD) (D0001-M01-S01-008).

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_193 The VIIRS Reflective M-band Imagery EDR software shall incorporate a computing algorithm provided for calibrated, top-of-atmosphere reflectances when the sensor mode is "day".

Rationale: The Reflective M-bands SDR products are produced for daytime only and are used to produce Reflective M-band Imagery EDR in accordance with the JPSS VIIRS Imagery Products Algorithm Theoretical Basis Document (ATBD) (D0001-M01-S01-008).

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_194 The VIIRS M-band Imagery EDR software shall incorporate a computing algorithm provided for mapping M-band SDR geolocation to the Ground Track Mercator grid.

Rationale: The EDR software through its algorithm must map M-band SDR geolocation to a GTM grid to produce geolocation for M-band Imagery.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_195 The VIIRS Reflective M-band Imagery EDR software shall generate the reflective M-band imagery EDR for the reflective M-bands specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <Refl_M_EDR><whichReflM>.

Rationale: The Reflective M-band Imagery EDRs are produced from specified Reflective M-bands. The selection of M-bands for Imagery EDR is configuration managed.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_207 The VIIRS Emissive M-band Imagery EDR software shall incorporate a computing algorithm provided for calibrated, top-of-atmosphere radiances.

Rationale: The calibrated TOA radiance is one of Emissive M-band SDR products and is used to produce Emissive M-band Imagery EDR in accordance with the JPSS VIIRS Imagery Products Algorithm Theoretical Basis Document (ATBD) (D0001-M01-S01-008).

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_208 The VIIRS Emissive M-band Imagery EDR software shall incorporate a computing algorithm provided for calibrated, top-of-atmosphere brightness temperatures.

Rationale: The calibrated TOA brightness temperature is one of Emissive M-band SDR products and is used to produce Emissive M-band Imagery EDR in accordance with the JPSS VIIRS Imagery Products Algorithm Theoretical Basis Document (ATBD) (D0001-M01-S01-008).

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_209 The VIIRS Emissive M-band Imagery EDR software shall generate the emissive M-band imagery EDR for the emissive M-bands specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <Emiss_M_EDR><whichEmissM>.

Rationale: The Emissive M-band Imagery EDRs are produced from specified Emissive M-bands. The selection of M-bands for Imagery EDR is configuration managed.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

3.2.3 Algorithm Exception Handling

SRS.01.26_147 The VIIRS NCC Imagery EDR software shall set each <FillField> to <FillValue> according to <FillCondition> specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <NCC_EDR><fill>.

Rationale: The EDR software through its computing algorithm must fill the NCC Imagery EDR values based on the established fill conditions to satisfy exclusion and fill conditions.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_165 The VIIRS Reflective I-band Imagery EDR software shall set each <FillField> to <FillValue> according to <FillCondition> specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <Refl_I1-3_EDR><fill>.

Rationale: The EDR software through its computing algorithm must fill the Reflective I-band Imagery EDR values based on the established fill conditions to satisfy exclusion and fill conditions.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_180 The VIIRS Emissive I-band Imagery EDR software shall set each <FillField> to <FillValue> according to <FillCondition> specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <Emiss_I4-5_EDR><fill>.

Rationale: The EDR software through its computing algorithm must fill the Emissive I-band Imagery EDR values based on the established fill conditions to satisfy exclusion and fill conditions.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_196 The VIIRS Reflective M-band Imagery EDR software shall set each <FillField> to <FillValue> according to <FillCondition> specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <Refl_M_EDR><fill>.

Rationale: The EDR software through its computing algorithm must fill the Reflective M-band Imagery EDR values based on the established fill conditions to satisfy exclusion and fill conditions.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_210 The VIIRS Emissive M-band Imagery EDR software shall set each <FillField> to <FillValue> according to <FillCondition> specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <Emiss_M_EDR><fill>.

Rationale: The EDR software through its computing algorithm must fill the Emissive M-band Imagery EDR values based on the established fill conditions to satisfy exclusion and fill conditions

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

3.3 External Interfaces

3.3.1 Inputs

SRS.01.26_150 The VIIRS NCC Imagery EDR software shall incorporate inputs per Table 3-1.

Rationale: The EDR generation software must be able to receive and process the resource interaction items shown in Table 3-1 in order to produce the intended NCC Imagery EDR products.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_168 The VIIRS Reflective I-band Imagery EDR software shall incorporate inputs per Table 3-1.

Rationale: The EDR generation software must be able to receive and process the resource interaction items shown in Table 3-1 in order to produce the intended Reflective I-band Imagery EDR products.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_182 The VIIRS Emissive I-band Imagery EDR software shall incorporate inputs per Table 3-1.

Rationale: The EDR generation software must be able to receive and process the resource interaction items shown in Table 3-1 in order to produce the intended Emissive I-band Imagery EDR products.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_199 The VIIRS Reflective M-band Imagery EDR software shall incorporate inputs per Table 3-1.

Rationale: The EDR generation software must be able to receive and process the resource interaction items shown in Table 3-1 in order to produce the intended Reflective M-band Imagery EDR products.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_212 The VIIRS Emissive M-band Imagery EDR software shall incorporate inputs per Table 3-1.

Rationale: The EDR generation software must be able to receive and process the resource interaction items shown in Table 3-1 in order to produce the intended Emissive M-band Imagery EDR products.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_306 The VIIRS NCC Imagery EDR software shall input tables and coefficients specified in Table 3-1 formatted in accordance with JPSS Algorithm Specification Vol II: Data Dictionary for VIIRS Imagery (474-00448-02-26), Section 7.

Rationale: This defines the formats for Lookup Tables, and Processing Coefficients for input into the algorithm module.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

Table 3-1 and Figure 3-1 are best viewed together since they describe the processes governed by this SRS in different ways. The figure diagrams the data flowing into, out of, and within the code

governed by this SRS. The table lists these same data interactions as well as all downstream dependencies for outputs from this SRS.

Each row in the table describes a single software interaction - data flowing from one software item to another. The data is listed in the first column. The second and third columns include the short name and mnemonic for the data. Blanks indicate there is no mnemonic. The fourth and fifth columns contain the SRS that generates the data product(s) in the first column, and the SRS that receives those products. The final two columns contain the actual function name in Algorithm Development Library (ADL) that produces those products, and the function that inputs those products. The SRS's titled "Ingest MSD" and "Store/Retrieve" are non-existent SRS's functioning as data handling for the IDPS. The software functions "Store Products" and "Retrieve Products" are similar non-existent functions that operate as IDPS data handling.

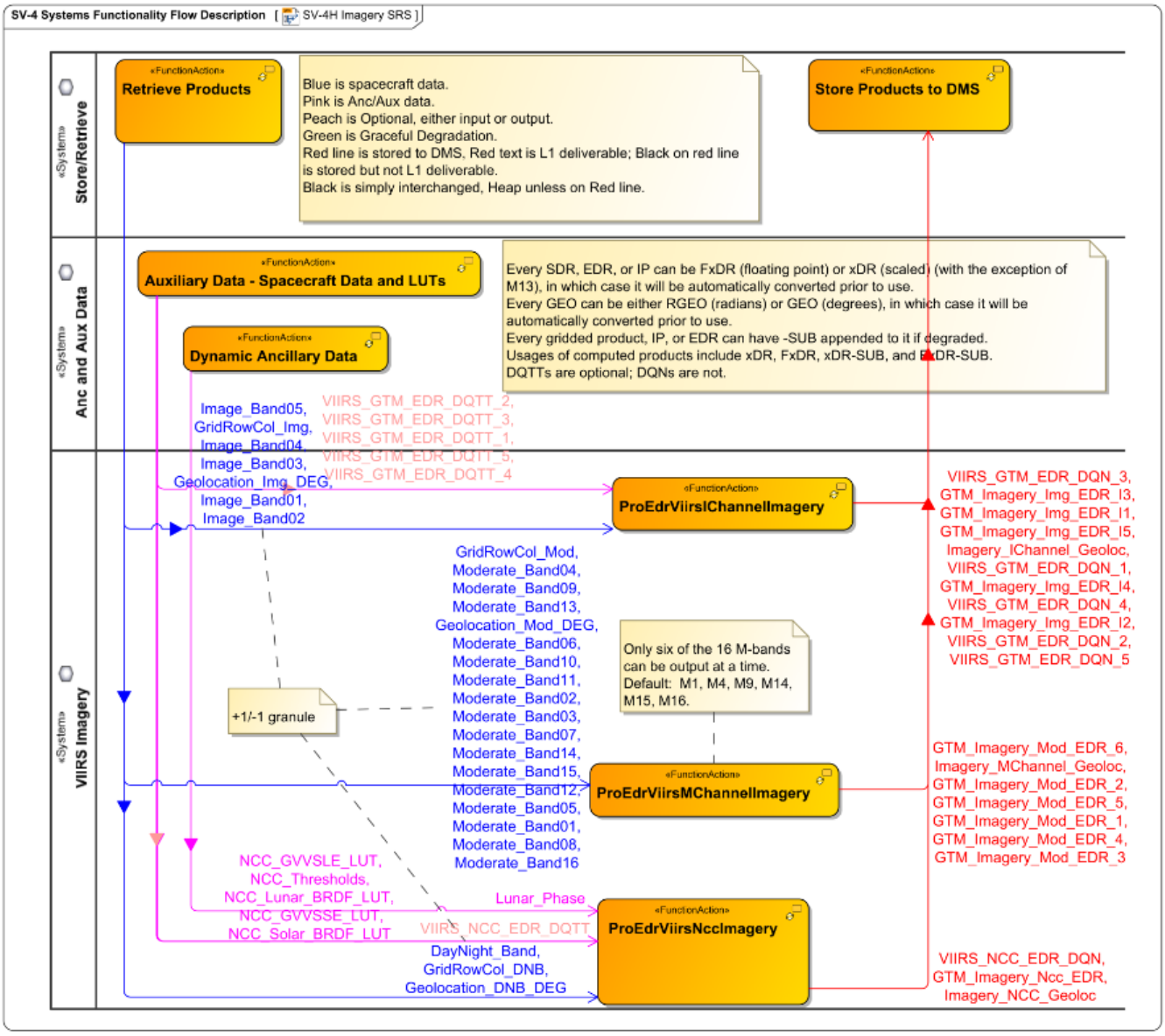

Figure: 3-1 VIIRS Imagery Data Flows

Table: 3-1 Systems Resource Flow Matrix: VIIRS Imagery

	Data Product Name	Collection Short Name	Mnemonic	Sending SRS	Receiving SRS	Sending Function	Receiving Function
1	•Image_Band05 •GridRowCol_Img •Image_Band04 •Image_Band03 •Geolocation_Img_DEG •Image_Band01 •Image_Band02	•VIIRS-I5-SDR •VIIRS-IMG-GRC •VIIRS-I4-SDR •VIIRS-I3-SDR •VIIRS-IMG-GEO •VIIRS-I1-SDR •VIIRS-I2-SDR	•SDRE-VI05-C0030 •None •SDRE-VI04-C0030 •SDRE-VI03-C0030 •None •SDRE-VI01-C0030 •SDRE-VI02-C0030	Store/Retrieve (VIIRS SDR)	VIIRS Imagery	Retrieve Products	ProEdrViirsIChannelImagery
2	•GridRowCol_Mod •Moderate_Band04 •Moderate_Band09 •Moderate_Band13 •Geolocation_Mod_DEG •Moderate_Band06 •Moderate_Band10 •Moderate_Band11 •Moderate_Band02 •Moderate_Band03 •Moderate_Band07 •Moderate_Band14 •Moderate_Band15 •Moderate_Band12 •Moderate_Band05 •Moderate_Band01 •Moderate_Band08 •Moderate_Band16	•VIIRS-MOD-GRC •VIIRS-M4-SDR •VIIRS-M9-SDR •VIIRS-M13-SDR •VIIRS-MOD-GEO •VIIRS-M6-SDR •VIIRS-M10-SDR •VIIRS-M11-SDR •VIIRS-M2-SDR •VIIRS-M3-SDR •VIIRS-M7-SDR •VIIRS-M14-SDR •VIIRS-M15-SDR •VIIRS-M12-SDR •VIIRS-M5-SDR •VIIRS-M1-SDR •VIIRS-M8-SDR •VIIRS-M16-SDR	•None •SDRE-VM04-C0030 •SDRE-VM09-C0030 •SDRE-VM13-C0030 •None •SDRE-VM06-C0030 •SDRE-VM10-C0030 •SDRE-VM11-C0030 •SDRE-VM02-C0030 •SDRE-VM03-C0030 •SDRE-VM07-C0030 •SDRE-VM14-C0030 •SDRE-VM15-C0030 •SDRE-VM12-C0030 •SDRE-VM05-C0030	Store/Retrieve (VIIRS SDR)	VIIRS Imagery	Retrieve Products	ProEdrViirsMChannelImagery

	Data Product Name	Collection Short Name	Mnemonic	Sending SRS	Receiving SRS	Sending Function	Receiving Function
			•SDRE-VM01-C0030 •SDRE-VM08-C0030 •SDRE-VM16-C0030				
3	•DayNight_Band •GridRowCol_DNB •Geolocation_DNB_DEG	•VIIRS-DNB-SDR •VIIRS-DNB-GRC •VIIRS-DNB-GEO	•SDRE-VDNB-C0030 •None •None	Store/Retrieve (VIIRS SDR)	VIIRS Imagery	Retrieve Products	ProEdrViirsNccImagery
4	•VIIRS_GTM_EDR_DQTT_2 •VIIRS_GTM_EDR_DQTT_3 •VIIRS_GTM_EDR_DQTT_1 •VIIRS_GTM_EDR_DQTT_5 •VIIRS_GTM_EDR_DQTT_4	•VIIRS-I2-IMG-EDR-DQTT •VIIRS-I3-IMG-EDR-DQTT •VIIRS-I1-IMG-EDR-DQTT •VIIRS-I5-IMG-EDR-DQTT •VIIRS-I4-IMG-EDR-DQTT	•DP_NU-LM2030-000 •DP_NU-LM2030-000 •DP_NU-LM2030-000 •DP_NU-LM2030-000 •DP_NU-LM2030-000	Anc and Aux Data	VIIRS Imagery	Auxiliary Data - Spacecraft Data and LUTs	ProEdrViirsIChannelImagery
5	•NCC_GVVSLE_LUT •NCC_Thresholds •NCC_Lunar_BRDF_LUT •NCC_GVVSSE_LUT •NCC_Solar_BRDF_LUT	•VIIRS-Ga-Val-Vs-Scene-Lun-Elev-LUT •VIIRS-NCC-EDR-AC •VIIRS-Lun-BRDF-LUT •VIIRS-Ga-Val-Vs-Scene-Sol-Elev-LUT •VIIRS-Sol-BRDF-LUT	•None •DP_NU-LM2030-000 •NP_NU-LM0233-015 •None •NP_NU-LM0233-017	Anc and Aux Data	VIIRS Imagery	Auxiliary Data - Spacecraft Data and LUTs	ProEdrViirsNccImagery
6	•VIIRS_NCC_EDR_DQTT	•VIIRS-NCC-EDR-DQTT	•DP_NU-LM2030-000	Anc and Aux Data	Imagery	Auxiliary Data - Spacecraft Data and LUTs	ProEdrViirsNccImagery
7	•Lunar_Phase	•VIIRS-LUN-Phase-LUT	•NP_NU-LM0233-016	Anc and Aux Data	VIIRS Imagery	Dynamic Ancillary Data	ProEdrViirsNccImagery
8	•VIIRS_NCC_EDR_DQN •GTM_Imagery_Ncc_EDR	•VIIRS-NCC-EDR-DQN •VIIRS-NCC-EDR •VIIRS-NCC-EDR-GEO	•DP_NU-L00090-001 •EDRE-IMAG-C1030	VIIRS Imagery	Store/Retrieve	ProEdrViirsNccImagery	Store Products to DMS

	Data Product Name	Collection Short Name	Mnemonic	Sending SRS	Receiving SRS	Sending Function	Receiving Function
	•Imagery_NCC_Geoloc		•None				
9	•GTM_Imagery_Mod_EDR_6 •Imagery_MChannel_Geoloc •GTM_Imagery_Mod_EDR_2 •GTM_Imagery_Mod_EDR_5 •GTM_Imagery_Mod_EDR_1 •GTM_Imagery_Mod_EDR_4 •GTM_Imagery_Mod_EDR_3	•VIIRS-M6TH-EDR •VIIRS-MOD-GTM-EDR-GEO •VIIRS-M2ND-EDR •VIIRS-M5TH-EDR •VIIRS-M1ST-EDR •VIIRS-M4TH-EDR •VIIRS-M3RD-EDR	•EDRE-VMOD-C0030 •None •EDRE-VMOD-C0030 •EDRE-VMOD-C0030 •EDRE-VMOD-C0030 •EDRE-VMOD-C0030 •EDRE-VMOD-C0030	VIIRS Imagery	Store/Retrieve	ProEdrViirsMChannelImagery	Store Products to DMS
10	•VIIRS_GTM_EDR_DQN_3 •GTM_Imagery_Img_EDR_I3 •GTM_Imagery_Img_EDR_I1 •GTM_Imagery_Img_EDR_I5 •Imagery_IChannel_Geoloc •VIIRS_GTM_EDR_DQN_1 •GTM_Imagery_Img_EDR_I4 •VIIRS_GTM_EDR_DQN_4 •GTM_Imagery_Img_EDR_I2 •VIIRS_GTM_EDR_DQN_2 •VIIRS_GTM_EDR_DQN_5	•VIIRS-I3-IMG-EDR-DQN •VIIRS-I3-IMG-EDR •VIIRS-I1-IMG-EDR •VIIRS-I5-IMG-EDR •VIIRS-IMG-GTM-EDR-GEO •VIIRS-I1-IMG-EDR-DQN •VIIRS-I4-IMG-EDR •VIIRS-I4-IMG-EDR-DQN •VIIRS-I2-IMG-EDR •VIIRS-I2-IMG-EDR-DQN •VIIRS-I5-IMG-EDR-DQN	DP_NU-L00090-001 •EDRE-IMAG-C0030 •EDRE-IMAG-C0030 •EDRE-IMAG-C0030 •None •DP_NU-L00090-001 •EDRE-IMAG-C0030 •DP_NU-L00090-001 •EDRE-IMAG-C0030 •DP_NU-L00090-001 •DP_NU-L00090-001	VIIRS Imagery	Store/Retrieve	ProEdrViirsIChannelImagery	Store Products to DMS

3.3.2 Outputs

SRS.01.26_148 The VIIRS NCC Imagery EDR software shall generate the near-constant contrast imagery EDR for the day/night band in conformance with the XML format file in Attachment A.14 of the JPSS Algorithm Specification Vol II: Data Dictionary for VIIRS Imagery (474-00448-02-26).

Rationale: The product profile must conform to the XML format file.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_166 The VIIRS Reflective I-band Imagery EDR software shall generate the reflective I-band imagery EDR for I1, I2, and I3 in conformance with the XML format file in Attachments A.1 - A.3 of the JPSS Algorithm Specification Vol II: Data Dictionary for VIIRS Imagery (474-00448-02-26).

Rationale: The product profile must conform to the XML format file.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_149 The VIIRS NCC Imagery EDR software shall use the geolocation for the DNB SDR.

Rationale: The geolocation for NCC Imagery EDR is based on the DNB SDR geolocation.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_167 The VIIRS I-band Imagery EDR software shall use the geolocation for the I-band SDR.

Rationale: The geolocation for I-band Imagery EDR is based on the I-band SDR geolocation.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_181 The VIIRS Emissive I-band Imagery EDR software shall generate the emissive I-band imagery EDR for I4 and I5 in conformance with the XML format file in Attachments A.4 and A.5 of the JPSS Algorithm Specification Vol II: Data Dictionary for VIIRS Imagery (474-00448-02-26).

Rationale: The product profile must conform to the XML format file.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_197 The VIIRS Reflective M-band Imagery EDR software shall generate the reflective M-band imagery EDR, in conformance with the XML format file in Attachments A.7 - A.12 of Vol II of the JPSS Algorithm Specification Vol II: Data Dictionary for VIIRS Imagery (474-00448-02-26).

Rationale: The product profile must conform to the XML format file.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_198 The VIIRS M-band Imagery EDR software shall use the geolocation for the M-band SDR.

Rationale: The geolocation for M-band Imagery EDR is based on the M-band SDR geolocation.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_211 The VIIRS Emissive M-band Imagery EDR software shall generate the emissive M-band imagery EDR, in conformance with the XML format file in Attachment A.7-A.12 of the JPSS Algorithm Specification Vol II: Data Dictionary for VIIRS Imagery (474-00448-02-26).

Rationale: The product profile must conform to the XML format file.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

3.4 Science Standards

Not applicable.

3.5 Metadata Output

Not applicable.

3.6 Quality Flag Content Requirements

SRS.01.26_157 The VIIRS NCC Imagery EDR software shall report for each <FlagScope> quality flags using <FlagLogic> as specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <NCC_EDR><QF>.

Rationale: Quality Flags must be generated based on the established flag conditions, logic, and format.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_158 The VIIRS NCC Imagery GEO software shall report for each <FlagScope> quality flags using <FlagLogic> as specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <NCC_GEO><QF>.

Rationale: Quality Flags must be generated based on the established flag conditions, logic, and format.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_174 The VIIRS Reflective I-band Imagery EDR software shall report for each <FlagScope> quality flags using <FlagLogic> as specified in the SRSPF <Refl_I1-3_EDR><QF>.

Rationale: Quality Flags must be generated based on the established flag conditions, logic, and format.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_175 The VIIRS I-band Imagery GEO software shall report for each <FlagScope> quality flags using <FlagLogic> as specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <IbandGEO><QF>.

Rationale: Quality Flags must be generated based on the established flag conditions, logic, and format.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_188 The VIIRS Emissive I-band Imagery EDR software shall report for each <FlagScope> quality flags using <FlagLogic> as specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <Emiss_I4-5_EDR><QF>.

Rationale: Quality Flags must be generated based on the established flag conditions, logic, and format.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_204 The VIIRS M-band Imagery GEO software shall report for each <FlagScope> quality flags using <FlagLogic> as specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <MbandGEO><QF>.

Rationale: Quality Flags must be generated based on the established flag conditions, logic, and format.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

3.7 Data Quality Notification Requirements

SRS.01.26_151 The VIIRS NCC Imagery EDR software shall send data quality notifications to the operator according to logic specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <NCC_EDR> <notification>.

Rationale: Notifications must be generated and sent based on the established logic and conditions.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

3.8 Adaptation

Not applicable.

3.9 Provenance Requirements

Not applicable.

3.10 Computer Software Requirements

Not applicable.

3.11 Software Quality Characteristics

Not applicable.

3.12 Design and Implementation Constraints

SRS.01.26_143 The Common Ground System shall execute the top-of-atmosphere pseudo albedo algorithm.

Rationale: The CGS must incorporate algorithm changes that are supplied by the algorithm vendor.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_159 The Common Ground System shall execute the top-of-atmosphere radiance algorithm.

Rationale: The CGS must incorporate algorithm changes that are supplied by the algorithm vendor.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_160 The Common Ground System shall execute the top-of-atmosphere reflectance algorithm.

Rationale: The CGS must incorporate algorithm changes that are supplied by the algorithm vendor.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_161 The Common Ground System shall execute the Ground Track Mercator mapping algorithm.

Rationale: The CGS must incorporate algorithm changes that are supplied by the algorithm vendor.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_176 The Common Ground System shall execute the top-of-atmosphere radiance algorithm.

Rationale: The CGS must incorporate algorithm changes that are supplied by the algorithm vendor.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_177 The Common Ground System shall execute the top-of-atmosphere brightness temperature algorithm.

Rationale: The CGS must incorporate algorithm changes that are supplied by the algorithm vendor.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_189 The Common Ground System shall execute the top-of-atmosphere radiance algorithm.

Rationale: The CGS must incorporate algorithm changes that are supplied by the algorithm vendor.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_190 The Common Ground System shall execute the top-of-atmosphere reflectance algorithm.

Rationale: The CGS must incorporate algorithm changes that are supplied by the algorithm vendor.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_191 The Common Ground System shall execute the Ground Track Mercator mapping algorithm.

Rationale: The CGS must incorporate algorithm changes that are supplied by the algorithm vendor.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_205 The Common Ground System shall execute the top-of-atmosphere radiance algorithm.

Rationale: The CGS must incorporate algorithm changes that are supplied by the algorithm vendor.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.26_206 The Common Ground System shall execute the top-of-atmosphere brightness temperature algorithm.

Rationale: The CGS must incorporate algorithm changes that are supplied by the algorithm vendor.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

3.13 Personnel Related Requirements

Not applicable.

3.14 Training Requirements

Not applicable.

3.15 Logistics Related requirements

Not applicable.

3.16 Other Requirements

Not applicable.

3.17 Packaging Requirements

Not applicable.

3.18 Precedence and Criticality

Not applicable.

Appendix A. Requirements Attributes

The Requirements Attributes Table lists each requirement with CM-controlled attributes including requirement type, mission effectivity, requirement allocation(s), block start and end, method(s) for verifying each requirement, etc.

Req ID	SRS 26 - VIIRS Imagery	Level 3 Type	Product Type	Mission Effectivity	Allocated To	Block Start	Block End	Block 2.0.0 VM	Block 2.1.0 VM	Block 2.2.0 VM
SRS.01.26_152	The VIIRS NCC Imagery algorithm shall calculate the value with a horizontal spatial resolution of 0.8 km across swath.	P	EDR	JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Test	NA	NA
SRS.01.26_155	The VIIRS NCC Imagery algorithm shall calculate the position of the pixel with a 3-sigma mapping uncertainty at nadir of 1 km.	P	EDR	JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Test	NA	NA
SRS.01.26_156	The VIIRS NCC Imagery algorithm shall calculate the position of the pixel with a 3-sigma mapping uncertainty at edge of swath of 3 km.	P	EDR	JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Test	NA	NA
SRS.01.26_170	The VIIRS Reflective I-band Imagery algorithm shall produce the reflectance with a horizontal spatial resolution at nadir of 0.4 km.	P	EDR	JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Test	NA	NA
SRS.01.26_171	The VIIRS Reflective I-band Imagery algorithm shall produce the reflectance with a horizontal spatial resolution at edge of swath of 0.8 km.	P	EDR	JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Test	NA	NA
SRS.01.26_172	The VIIRS Reflective I-band Imagery algorithm shall produce the reflectance with a 3-sigma mapping uncertainty at nadir of 1 km.	P	EDR	JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Test	NA	NA
SRS.01.26_173	The VIIRS Reflective I-band Imagery algorithm shall produce the reflectance with a 3-sigma mapping uncertainty at edge of swath of 3 km.	P	EDR	JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Test	NA	NA
SRS.01.26_184	The VIIRS Emissive I-band Imagery algorithm shall produce the brightness temperature with a horizontal spatial resolution at nadir of 0.4 km.	P	EDR	JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Test	NA	NA
SRS.01.26_185	The VIIRS Emissive I-band Imagery algorithm shall produce the brightness	P	EDR	JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Test	NA	NA

Req ID	SRS 26 - VIIRS Imagery	Level 3 Type	Product Type	Mission Effectivity	Allocated To	Block Start	Block End	Block 2.0.0 VM	Block 2.1.0 VM	Block 2.2.0 VM
	temperature with a horizontal spatial resolution at edge of swath of 0.8 km.									
SRS.01.26_186	The VIIRS Emissive I-band Imagery algorithm shall produce the brightness temperature with a 3-sigma mapping uncertainty at nadir of 1 km.	P	EDR	JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Test	NA	NA
SRS.01.26_187	The VIIRS Emissive I-band Imagery algorithm shall produce the brightness temperature with a 3-sigma mapping uncertainty at edge of swath of 3 km.	P	EDR	JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Test	NA	NA
SRS.01.26_200	The VIIRS Reflective M-band Imagery algorithm shall produce the reflectance with a horizontal spatial resolution at nadir of 0.8 km.	P	EDR	JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Test	NA	NA
SRS.01.26_201	The VIIRS Reflective M-band Imagery algorithm shall produce the reflectance with a horizontal spatial resolution at edge of swath of 1.6 km.	P	EDR	JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Test	NA	NA
SRS.01.26_202	The VIIRS Reflective M-band Imagery algorithm shall produce the reflectance with a 3-sigma mapping uncertainty at nadir of 1 km.	P	EDR	JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Test	NA	NA
SRS.01.26_203	The VIIRS Reflective M-band Imagery algorithm shall produce the reflectance with a 3-sigma mapping uncertainty at edge of swath of 3 km.	P	EDR	JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Test	NA	NA
SRS.01.26_213	The VIIRS Emissive M-band Imagery algorithm shall produce the brightness temperature with a horizontal spatial resolution at nadir of 0.8 km.	P	EDR	JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Test	NA	NA
SRS.01.26_214	The VIIRS Emissive M-band Imagery algorithm shall produce the brightness temperature with a horizontal spatial resolution at edge of swath of 1.6 km.	P	EDR	JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Test	NA	NA
SRS.01.26_215	The VIIRS Emissive M-band Imagery algorithm shall produce the brightness	P	EDR	JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Test	NA	NA

Req ID	SRS 26 - VIIRS Imagery	Level 3 Type	Product Type	Mission Effectivity	Allocated To	Block Start	Block End	Block 2.0.0 VM	Block 2.1.0 VM	Block 2.2.0 VM
	temperature with a 3-sigma mapping uncertainty at nadir of 1 km.									
SRS.01.26_216	The VIIRS Emissive M-band Imagery algorithm shall produce the brightness temperature with a 3-sigma mapping uncertainty at edge of swath of 3 km.	P	EDR	JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Test	NA	NA
SRS.01.26_145	The VIIRS NCC Imagery EDR software shall incorporate a computing algorithm provided for pseudo albedo.	Ap	EDR	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_146	The VIIRS NCC Imagery EDR software shall incorporate a computing algorithm provided for mapping DNB SDR geolocation to the Ground Track Mercator grid.	Ap	GEO	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_178	The VIIRS Emissive I-band Imagery EDR software shall incorporate a computing algorithm provided for calibrated, top-of-atmosphere radiances.	Ap	EDR	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_179	The VIIRS Emissive I-band Imagery EDR software shall incorporate a computing algorithm provided for calibrated, top-of-atmosphere brightness temperatures.	Ap	EDR	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_162	The VIIRS Reflective I-band Imagery EDR software shall incorporate a computing algorithm provided for calibrated, top-of-atmosphere radiances.	Ap	EDR	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_163	The VIIRS Reflective I-band Imagery EDR software shall incorporate a computing algorithm provided for calibrated, top-of-atmosphere reflectances when the sensor mode is "day".	Ap	EDR	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_164	The VIIRS I-band Imagery EDR software shall incorporate a computing algorithm provided for mapping I-band SDR geolocation to the Ground Track Mercator grid.	Ap	GEO	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_192	The VIIRS Reflective M-band Imagery EDR	Ap	EDR	S-NPP	algorithm	2.0.0	3.0.0	Inspection	NA	NA

Req ID	SRS 26 - VIIRS Imagery	Level 3 Type	Product Type	Mission Effectivity	Allocated To	Block Start	Block End	Block 2.0.0 VM	Block 2.1.0 VM	Block 2.2.0 VM
	software shall incorporate a computing algorithm provided for calibrated, top-of-atmosphere radiances.			JPSS-1 JPSS-2	provider					
SRS.01.26_193	The VIIRS Reflective M-band Imagery EDR software shall incorporate a computing algorithm provided for calibrated, top-of-atmosphere reflectances when the sensor mode is "day".	Ap	EDR	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_194	The VIIRS M-band Imagery EDR software shall incorporate a computing algorithm provided for mapping M-band SDR geolocation to the Ground Track Mercator grid.	Ap	GEO	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_195	The VIIRS Reflective M-band Imagery EDR software shall generate the reflective M-band imagery EDR for the reflective M-bands specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <Refl_M_EDR><whichReflM>.	Ap	EDR	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_207	The VIIRS Emissive M-band Imagery EDR software shall incorporate a computing algorithm provided for calibrated, top-of-atmosphere radiances.	Ap	EDR	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_208	The VIIRS Emissive M-band Imagery EDR software shall incorporate a computing algorithm provided for calibrated, top-of-atmosphere brightness temperatures.	Ap	EDR	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_209	The VIIRS Emissive M-band Imagery EDR software shall generate the emissive M-band imagery EDR for the emissive M-bands specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <Emiss_M_EDR><whichEmissM>.	Ap	EDR	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_147	The VIIRS NCC Imagery EDR software shall	E	EDR	S-NPP	CGS	2.0.0	3.0.0	Inspection	NA	NA

Req ID	SRS 26 - VIIRS Imagery	Level 3 Type	Product Type	Mission Effectivity	Allocated To	Block Start	Block End	Block 2.0.0 VM	Block 2.1.0 VM	Block 2.2.0 VM
	set each <FillField> to <FillValue> according to <FillCondition> specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <NCC_EDR><fill>.			JPSS-1 JPSS-2						
SRS.01.26_165	The VIIRS Reflective I-band Imagery EDR software shall set each <FillField> to <FillValue> according to <FillCondition> specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <Refl_I1-3_EDR><fill>.	E	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_180	The VIIRS Emissive I-band Imagery EDR software shall set each <FillField> to <FillValue> according to <FillCondition> specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <Emiss_I4-5_EDR><fill>.	E	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_196	The VIIRS Reflective M-band Imagery EDR software shall set each <FillField> to <FillValue> according to <FillCondition> specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <Refl_M_EDR><fill>.	E	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_210	The VIIRS Emissive M-band Imagery EDR software shall set each <FillField> to <FillValue> according to <FillCondition> specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <Emiss_M_EDR><fill>.	E	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_150	The VIIRS NCC Imagery EDR software shall incorporate inputs per Table 3-1.	I	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_168	The VIIRS Reflective I-band Imagery EDR software shall incorporate inputs per Table 3-1.	I	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_182	The VIIRS Emissive I-band Imagery EDR	I	EDR	S-NPP	CGS	2.0.0	3.0.0	Inspection	NA	NA

Req ID	SRS 26 - VIIRS Imagery	Level 3 Type	Product Type	Mission Effectivity	Allocated To	Block Start	Block End	Block 2.0.0 VM	Block 2.1.0 VM	Block 2.2.0 VM
	software shall incorporate inputs per Table 3-1.			JPSS-1 JPSS-2						
SRS.01.26_199	The VIIRS Reflective M-band Imagery EDR software shall incorporate inputs per Table 3-1.	I	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_212	The VIIRS Emissive M-band Imagery EDR software shall incorporate inputs per Table 3-1.	I	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_306	The VIIRS NCC Imagery EDR software shall input tables and coefficients specified in Table 3-1 formatted in accordance with JPSS Algorithm Specification Vol II: Data Dictionary for VIIRS Imagery (474-00448-02-26), Section 7.	Ft	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_148	The VIIRS NCC Imagery EDR software shall generate the near-constant contrast imagery EDR for the day/night band in conformance with the XML format file in Attachment A.14 of the JPSS Algorithm Specification Vol II: Data Dictionary for VIIRS Imagery (474-00448-02-26).	F	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_166	The VIIRS Reflective I-band Imagery EDR software shall generate the reflective I-band imagery EDR for I1, I2, and I3 in conformance with the XML format file in Attachments A.1 - A.3 of the JPSS Algorithm Specification Vol II: Data Dictionary for VIIRS Imagery (474-00448-02-26).	F	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_149	The VIIRS NCC Imagery EDR software shall use the geolocation for the DNB SDR.	Fg	GEO	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_167	The VIIRS I-band Imagery EDR software shall use the geolocation for the I-band SDR.	Fg	GEO	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_181	The VIIRS Emissive I-band Imagery EDR software shall generate the emissive I-band	F	EDR	S-NPP JPSS-1	CGS	2.0.0	3.0.0	Inspection	NA	NA

Req ID	SRS 26 - VIIRS Imagery	Level 3 Type	Product Type	Mission Effectivity	Allocated To	Block Start	Block End	Block 2.0.0 VM	Block 2.1.0 VM	Block 2.2.0 VM
	imagery EDR for I4 and I5 in conformance with the XML format file in Attachments A.4 and A.5 of the JPSS Algorithm Specification Vol II: Data Dictionary for VIIRS Imagery (474-00448-02-26).			JPSS-2						
SRS.01.26_197	The VIIRS Reflective M-band Imagery EDR software shall generate the reflective M-band imagery EDR, in conformance with the XML format file in Attachments A.7 - A.12 of Vol II of the JPSS Algorithm Specification Vol II: Data Dictionary for VIIRS Imagery (474-00448-02-26).	F	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_198	The VIIRS M-band Imagery EDR software shall use the geolocation for the M-band SDR.	Fg	GEO	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_211	The VIIRS Emissive M-band Imagery EDR software shall generate the emissive M-band imagery EDR, in conformance with the XML format file in Attachment A.7-A.12 of the JPSS Algorithm Specification Vol II: Data Dictionary for VIIRS Imagery (474-00448-02-26).	F	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_157	The VIIRS NCC Imagery EDR software shall report for each <FlagScope> quality flags using <FlagLogic> as specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <NCC_EDR><QF>.	Q	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_158	The VIIRS NCC Imagery GEO software shall report for each <FlagScope> quality flags using <FlagLogic> as specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <NCC_GEO><QF>.	Q	GEO	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_174	The VIIRS Reflective I-band Imagery EDR software shall report for each <FlagScope>	Q	EDR	S-NPP JPSS-1	CGS	2.0.0	3.0.0	Inspection	NA	NA

Req ID	SRS 26 - VIIRS Imagery	Level 3 Type	Product Type	Mission Effectivity	Allocated To	Block Start	Block End	Block 2.0.0 VM	Block 2.1.0 VM	Block 2.2.0 VM
	quality flags using <FlagLogic> as specified in the SRSPF <Refl_I1-3_EDR><QF>.			JPSS-2						
SRS.01.26_175	The VIIRS I-band Imagery GEO software shall report for each <FlagScope> quality flags using <FlagLogic> as specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <IbandGEO><QF>.	Q	GEO	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_188	The VIIRS Emissive I-band Imagery EDR software shall report for each <FlagScope> quality flags using <FlagLogic> as specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <Emiss_I4-5_EDR><QF>.	Q	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_204	The VIIRS M-band Imagery GEO software shall report for each <FlagScope> quality flags using <FlagLogic> as specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <MbandGEO><QF>.	Q	GEO	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_151	The VIIRS NCC Imagery EDR software shall send data quality notifications to the operator according to logic specified in the JPSS Algorithm Specification Vol IV: SRSPF for VIIRS Imagery (474-00448-04-26) <NCC_EDR> <notification>.	N	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_143	The Common Ground System shall execute the top-of-atmosphere pseudo albedo algorithm.	Ai	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_159	The Common Ground System shall execute the top-of-atmosphere radiance algorithm.	Ai	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_160	The Common Ground System shall execute the top-of-atmosphere reflectance algorithm.	Ai	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_161	The Common Ground System shall execute	Ai	GEO	S-NPP	CGS	2.0.0	3.0.0	Inspection	NA	NA

Req ID	SRS 26 - VIIRS Imagery	Level 3 Type	Product Type	Mission Effectivity	Allocated To	Block Start	Block End	Block 2.0.0 VM	Block 2.1.0 VM	Block 2.2.0 VM
	the Ground Track Mercator mapping algorithm.			JPSS-1 JPSS-2						
SRS.01.26_176	The Common Ground System shall execute the top-of-atmosphere radiance algorithm.	Ai	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_177	The Common Ground System shall execute the top-of-atmosphere brightness temperature algorithm.	Ai	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_189	The Common Ground System shall execute the top-of-atmosphere radiance algorithm.	Ai	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_190	The Common Ground System shall execute the top-of-atmosphere reflectance algorithm.	Ai	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_191	The Common Ground System shall execute the Ground Track Mercator mapping algorithm.	Ai	GEO	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_205	The Common Ground System shall execute the top-of-atmosphere radiance algorithm.	Ai	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.26_206	The Common Ground System shall execute the top-of-atmosphere brightness temperature algorithm.	Ai	EDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA